In the Claims

1. (currently amended) An intelligent data concentrator, comprising:

a housing having a first surface and a second surface and configured to be mounted substantially within a cavity in a wall in such a way that the first surface is internal to the wall and the second surface is external the cavity and substantially planar with the wall, said housing further comprising;

a first interface at the first surface ~~for communicatively coupling, at an internal space in a wall,~~ operable to physically couple to a dedicated drop of network cabling terminating within the wall and to communicatively couple said intelligent data concentrator to said network, said network having a head end at an opposite end of the network cabling, wherein said head end is a central control site at operable to remotely access said intelligent data concentrator over said network;

a second interface at the second surface comprising a plurality of communication ports for communicatively coupling~~, at an external surface of the wall,~~ said intelligent data concentrator to a plurality of client devices at said plurality of communication ports such that said client devices are communicatively coupled to said network;

means for processing and interpreting data internal to the housing and coupled to said first interface; and

fault detection means internal to the housing and coupled to said means for processing and interpreting data, said fault detection means ~~for performing fault detection in said network~~ operable to identify, based on a

physical location of the housing and communications from the head end, a physical location of a fault in the network.

2. (previously presented) An intelligent data concentrator as recited in Claim 1 wherein said head end is operable to remotely access said means for processing and interpreting data.

3. (previously presented) An intelligent data concentrator as recited in Claim 1 wherein said fault detection means is configured to isolate faults in both an uplink from said head end of said network and a downlink from said head end of said network.

4. (previously presented) An intelligent data concentrator as recited in Claim 1 wherein said fault detection means is selected from the group consisting essentially of:

a link beat signal fault detection, a ping signal fault detection, and a loop-back mode for fault detection.

5. (previously presented) An intelligent data concentrator as recited in Claim 1 wherein said intelligent data concentrator is configured such that said intelligent data concentrator is provided power over said network.

6. (previously presented) An intelligent data concentrator as recited in Claim 5 wherein said head end is configured to activate and deactivate said intelligent data concentrator over said network.

7. (previously presented) An intelligent data concentrator as recited in Claim 5 wherein said intelligent data concentrator is configured to activate and deactivate said client devices.

8. (previously presented) An intelligent data concentrator as recited in Claim 1 wherein said intelligent data concentrator employs time domain reflectometry measurement techniques such that said fault detection means is operable to determine a distance from said intelligent data concentrator to said fault.

9. (previously presented) An intelligent data concentrator as recited in Claim 1, wherein said intelligent data concentrator is configured to receive data packets from said head end.

10. (previously presented) An intelligent data concentrator as recited in Claim 9 wherein said data packets are for operating diagnostic tests at said intelligent data concentrator for validating network connections.

11.-20. (cancelled)

21. (currently amended) A method for fault detection in a network, said method comprising the steps of:

a) providing an intelligent data concentrator coupled to a network, said intelligent data concentrator comprising ~~a first interface for communicatively coupling, at an internal space in a wall, said intelligent data concentrator to said network, a second interface comprising a plurality of communication ports for communicatively coupling, at an external~~

~~surface of the wall, said intelligent data concentrator to a plurality of client devices at said plurality of communication ports, a robust processor coupled to said first interface, and a fault detector coupled to said robust processor, said network having a head end, wherein said head end is a central control site operable to remotely access said intelligent data concentrator over said network;~~ a housing having a first surface and a second surface and configured to be mounted substantially within a cavity in a wall in such a way that the first surface is internal to the wall and the second surface is external the cavity and substantially planar with the wall, said housing further comprising;

a first interface at the first surface operable to physically couple to a dedicated drop of network cabling terminating within the wall and to communicatively couple said intelligent data concentrator to said network, said network having a head end, wherein said head end is a central control site at operable to remotely access said intelligent data concentrator over said network;

a second interface at the second surface comprising a plurality of communication ports for communicatively coupling said intelligent data concentrator to a plurality of client devices at said plurality of communication ports such that said client devices are communicatively coupled to said network;

means for processing and interpreting data internal to the housing and coupled to said first interface; and

fault detection means internal to the housing and coupled to said means for processing and interpreting data, said fault detection means operable to identify, based on a physical location of the housing and

communications from the head end, a physical location of a fault in the network;

b) monitoring said network for a fault by said intelligent data concentrator and said head end, such that said intelligent data concentrator and said head end operate in conjunction to identify a physical location of the fault.

22. (currently amended) A method as recited in Claim 21 wherein said head end is operable to remotely access said ~~robust processor~~ means for processing and interpreting data.

23. (Original) A method as recited in Claim 21 wherein said fault detector is configured to isolate faults in both an uplink from said head end of said network and a downlink from said head end of said network.

24. (Original) A method as recited in Claim 21 wherein said fault detector is selected from the group consisting essentially of: a link beat signal fault detector, a ping signal fault detector, and a loop-back mode for fault detection.

25. (previously presented) A method as recited in Claim 21 wherein said intelligent data concentrator is configured such that said intelligent data concentrator is provided power over said network.

26. (previously presented) A method as recited in Claim 25 wherein said head end is configured to activate and deactivate said intelligent data concentrator over said network.

27. (previously presented) A method as recited in Claim 25 wherein said intelligent data concentrator is configured to activate and deactivate said client devices.

28. (previously presented) A method as recited in Claim 21 wherein said intelligent data concentrator employs time domain reflectometry measurement techniques such that said fault detection means is operable to determine a distance from said intelligent data concentrator to said fault.

29. (previously presented) A method as recited in Claim 21 wherein said intelligent data concentrator is configured to receive data packets from said head end.

30. (previously presented) A method as recited in Claim 29 wherein said data packets are for operating diagnostic tests at said intelligent data concentrator for validating network connections.